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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/752,683	01/03/2001	Yoichi Yamamoto	2589-9	9757

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EXAMINER

SHAPIRO, LEONID

ART UNIT	PAPER NUMBER
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2673

DATE MAILED: 08/22/2002

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Please find below and/or attached an Office communication concerning this application or proceeding.

8

Office Action Summary

Application No.

09/752,683

Applicant(s)

YAMAMOTO ET AL.

Examiner

Leonid Shapiro

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

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Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claim 1-12 rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification/disclosure does not provide support for recited in claims 1-12 as a whole how to make or use applicant's claimed invention by one skilled in the art. The change of the voltage or current of the light source will affect both brightness and color balance of the liquid crystal panel. The change of brightness will lead to unpredictable and possible unacceptable color shift (See Fig. 3, items 24, 40, in description Col. 7, Lines 31-40 in US Patent No. 6,388,648 B1). The same reference teaches how to provide luminance control without any color balance interaction (See Col. 5, Lines 22-24). No working examples disclosing the amount of the color shift of the color balance for the wide luminance control range for different ambient light condition have been provided. Without this disclosure, one skilled in the art cannot practice the invention without undue experimentation because of the uncertainty of the usage of the light source control.

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3. Claim 11 rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Optical sensors for measuring how the liquid crystal panel is emitting R, G, and B light independently for R, G, and B light are not described in the specification/disclosure at all. The viewing angle of 10 degree in all directions will prevent the measurement of the single subpixel.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. Claim 12 rejected under 35 U.S.C. 102(e) as being anticipated by Tsuzuki et al. (US Patent No. 6,388,716 B1).

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As best understood by examiner, Tsuzuki et al. teaches an image processing device with varying means for varying how R, G, and B light is emitted to display an image on a display panel (See Fig. 13-14, items 95-97, in description See Col. 2, Lines 14-24); a sensor for measuring how the R, G, and B light is emitted to display the image (See Fig. 14, item 97, in description See Col. 18, lines 2-3); wherein brightness or chromaticity or both of the image is corrected by controlling the varying means according to a measurement value obtained from the sensor (See Fig. 13-14, items 95-97, in description See Col. 18, Lines 4-35).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-7 rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuzuki et al in view of Clifton et al. (US Patent No. 6,388,648 B1).

As to claim 1, As best understood by examiner, Tsuzuki et al. teaches an image display device with: a liquid crystal panel for displaying an RGB image, a light source for supplying light that the liquid crystal panel needs for display operation (See Fig. 13, item 96, in description See Col. 17, Lines 65-67 and Col. 18, Lines 1-3); an optical sensor for measuring how the liquid crystal panel is emitting R, G and B light (See Fig 13-14, items 96, 97, in description See Col. 17, Lines 65-67 and Col. 18, Lines 1-35); wherein brightness of the video image controlled according to a measurement value obtained from the optical sensor in order to correct brightness

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or chromaticity or both of the liquid crystal panel (See Fig 13-14, items 96, 97 , in description See Col.17, Lines 65-67 and Col. 18, Lines 1-35).

Tsuzuki et al. does not show how to control the lighting of the light source.

Clifton et al. teaches a master luminance control may be implemented by the simply Adjusting the supply voltage to the light source (See Fig. 3, item 24, in description See Col. 7, Lines 31-40). It would have been obvious to one of ordinary skill in the art in the time of the invention to implement Clifton et al. approach in the Tsuzuki et al. apparatus in order to improve the image quality of the image.

As to claim 4, As best understood by examiner, Tsuzuki et al. teaches the optical sensor has a light sensor area at least equal to areas of one R, one G, and one B dots added together (See Fig. 14, item 97, in description See col. 18, Lines 15-20).

As to claim 5, As best understood by examiner, Clifton et al. teaches the brightness or chromaticity of liquid crystal panel is corrected by controlling a driving voltage of the light source (See Fig. 3, item 24, in description See Col. 7, Lines 31-40).

As to claims 2-3, As best understood by examiner, Tsuzuki et al. teaches the optical sensor has a light sensor area at least equal to areas of one R, one G, and one B dots added together (See Fig. 14, item 97, in description See col. 18, Lines 15-20).

Tsuzuki et al. does not teach a viewing angle of the optical sensor is limited to 10 degrees in all directions and a measurement area of the optical sensor depends on the viewing angle.

As notoriously well known in the art that a measurement area of a sensor depends on its viewing angle and less than 10 degree viewing angle optical sensors could be manufactured. It would have been obvious to one of ordinary skill in the art in the time of the invention to

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implement a sensor with a limited viewing angle (10 degree) in the Tsuzuki et al. apparatus in order to improve the image quality of the image.

As to claims 6-7, As best understood by examiner, Tsuzuki et al. teaches that the light source is a backlight provided on the back of the liquid crystal panel and the RGB image is displayed by receiving image data transmitted from a transmitting side (See Fig. 13-14, items a1, 96, in description See Col. 18, Lines 7-8).

6. Claims 8-9, As best understood by examiner, rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuzuki et al. and Clifton et al. as aforementioned in claim 1 in view of Yamomoto et al. (US Patent No. 6,348,910 B1)

Tsuzuki et al. and Clifton et al. do not show a temperature sensor for measuring surface temperature of the light source, wherein the driving voltage or driving current of the light source is controlled in such way that the surface temperature of the light source is kept constant and the temperature sensor is a thermistor.

Yamomoto et al. teaches this kind of control (See Fig. 4, 7, items 171,105,131, in description See Col. 12, Lines 55-68) and the temperature sensor is a thermistor (See Fig. 52, step S293, in description See Col.47, Lines 48-52). It would have been obvious to one of ordinary skill in the art in the time of the invention to implement a temperature sensor as a thermistor as shown by Yamomoto et al. in the Tsuzuki et al. apparatus in order to improve the image quality of the image.

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7. Claim 10, As best understood by examiner, rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuzuki et al. and Clifton et al. in view of Terasaki (US Patent No. 5,844,540)

Tsuzuki et al. teach an image display device with a liquid crystal panel for displaying an RGB image, a light source for supplying light that the liquid crystal panel needs for display operation (See Fig. 13, item 96, in description See Col. 17, Lines 65-67 and Col. 18, Lines 1-3); an optical sensor for measuring how the liquid crystal panel is emitting R, G and B light (See Fig 13-14, items 96, 97, in description See Col.17, Lines 65-67 and Col. 18, Lines 1-35); a signal reading circuit for converting a measurement value obtained from the optical sensor into a current brightness value of the liquid crystal panel, brightness setting means for permitting entry of specified brightness of the liquid crystal panel, converting means for converting an output of the brightness setting means into a specified brightness value of the liquid crystal panel (See Fig. 13, items 20, 97, 96, 22, 23, 24, 15, 16, 95, in description See Col. 18, Lines 24-35).

Clifton et al. teaches the brightness of the liquid crystal panel is corrected by controlling lighting of the backlight (light source) according to the measurement value (See Fig. 3, item 24, in description See Col. 7, Lines 31-40).

Tsuzuki et al. and Clifton et al. do not teach a duty factor setting circuit for outputting a pulse signal whose duty factor depends on an output of the calculator (controller or computer) and inverter for producing a driving voltage and a driving current for the backlight according to the pulse signal.

Terasaki shows a liquid crystal display with backlight control function is provided with PWM dimmer driving circuit including duty factor setting (See Fig. 9 and 10, in description See Col. 11, Lines 49-60) and inverter (See Fig. 22d and 22e, items 52, 58, 59, in description See

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Col. 2, Lines 43-58). It would have been obvious to one of ordinary skill in the art in the time of the invention to implement a duty factor and inverter circuits as shown by Terasaki in the Tsuzuki et al. and Clifton et al. apparatus in order to improve the image quality of the image.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

The Lippmann et al. (US Patent No. 5,623,277) reference discloses an IC driver mounted on a LCD display package contains a sensor for determining temperature of the LCD cell.

The Greene et al. (US Patent No. 6,271,825 B1) reference correction method for brightness in electronic display.

The Cohen et al. (US Patent No. 6,100,861) reference discloses a tiled flat panel display with improved color gamut.

The Winer (US Patent No. 6,275,205 B1) reference discloses method and apparatus for displaying information with an integrated circuit device.

The Evanicky (US Patent No. 6,366,270 B1) reference discloses multiple light sources color balancing system within a liquid crystal flat panel display.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonid Shapiro whose telephone number is 703-305-5661. The examiner can normally be reached on 8 a.m. to 5 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on 703-305-4938. The fax phone numbers for the


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organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4750.

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August 20, 2002


BIPIN SHALWALA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2